

WHAT IS CLAIMED IS:

1. A non-human meat product for consumption comprising non-human muscle cells grown  
*ex vivo*.
2. The non-human meat product in claim 1 further comprising:  
5 a support structure; and  
wherein the non-human muscle cells are attached to the support structure.
3. The non-human meat product in claim 1 wherein the non-human muscle cells are skeletal  
muscle cells.
4. The non-human meat product in claim 1 wherein the non-human muscle cells are derived  
10 from animals selected from the group consisting of mammals, birds, fishes, invertebrates,  
reptiles, and amphibians.
5. The non-human meat product in claim 1 wherein the non-human meat product is  
substantially free from harmful microbial contamination.
6. The non-human meat product in claim 1 wherein the non-human muscle cells are derived  
15 from pluri-potent or toti-potent cells.
7. The non-human meat product in claim 1 wherein the non-human muscle cells have been  
exposed to an electric current.
8. The non-human meat product in claim 1 further comprising non-human adipocyte cells  
grown *ex vivo*.
- 20 9. The non-human meat product in claim 8 wherein the non-human adipocyte cells are  
trans-differentiated from non-human myoblasts.

10. The non-human meat product in claim 8 wherein the non-human adipocyte cells are derived from pluri-potent or toti-potent non-human stem cells.
11. The non-human meat product in claim 1 further comprising non-human cartilage cells grown *ex vivo*.
- 5 12. The non-human meat product in claim 10 wherein the non-human cartilage cells are positioned between a support structure and the non-human muscle cells.
13. The non-human meat product in claim 10 wherein the non-human cartilage cells have been exposed to mechanical stress.
14. A method of producing non-human meat products for consumption comprising the steps:  
culturing non-human muscle stem cells *ex vivo*;  
seeding the non-human muscle stem cells onto a support structure; and  
growing the non-human muscle stem cells to produce a non-human meat product.
15. The method in claim 13 wherein the step of growing the non-human muscle stem cells comprises:  
differentiating the non-human muscle stem cells into different types of non-human muscle cells.
16. The method in claim 14 further comprising the step:  
exposing the non-human muscle cells to an electric or oscillating current.
17. The method in claim 13 further comprising the step:  
adding nutrients to be incorporated into the non-human meat products.
- 20

18. The method in claim 13 wherein the non-human muscle cells are derived from animals selected from the group consisting of mammals, birds, fishes, invertebrates, reptiles, and amphibians.

19. The method in claim 13 wherein the non-human meat product is substantially free from harmful microbial contamination.

20. A method of producing non-human meat for consumption comprising the steps:  
co-culturing non-human muscle cells and non-human fat cells *ex vivo*;  
seeding the non-human muscle cells and the non-human fat cells to a support structure;  
and growing the non-human muscle cells and the non-human fat cells to produce a non-human meat product.

21. A method of producing non-human meat for consumption comprising the steps of:  
culturing non-human muscle stem cells *ex vivo*;  
seeding the non-human muscle stem cells to a support structure;  
treating the non-human muscle stem cells with fatty acids to trans-differentiate the non-human muscle stem cells into adipocytes; and  
growing the adipocytes to produce a non-human meat product.

22. A method of producing non-human meat products for consumption comprising the steps:  
culturing non-human cartilage cells *ex vivo*;  
seeding the non-human cartilage cells to a support structure;  
culturing non-human muscle cells together with the non-human cartilage cells on or around the support structure; and  
growing the non-human muscle cells to produce a non-human meat product.

Physical characteristics		Chemical characteristics		Biological characteristics		Ecological characteristics		Economic characteristics	
Parameter	Value	Parameter	Value	Parameter	Value	Parameter	Value	Parameter	Value
Length (cm)	10.5	Protein content (%)	12.5	Growth rate (g/day)	0.5	Survival (%)	85	Feed conversion ratio	1.5
Weight (g)	150	Moisture content (%)	75	Survival (%)	90	Survival (%)	80	Feed conversion ratio	1.2
Length (cm)	12.0	Protein content (%)	13.0	Growth rate (g/day)	0.6	Survival (%)	88	Feed conversion ratio	1.4
Weight (g)	160	Moisture content (%)	76	Survival (%)	92	Survival (%)	82	Feed conversion ratio	1.3
Length (cm)	11.0	Protein content (%)	12.8	Growth rate (g/day)	0.55	Survival (%)	86	Feed conversion ratio	1.45
Weight (g)	155	Moisture content (%)	75.5	Survival (%)	91	Survival (%)	81	Feed conversion ratio	1.35
Length (cm)	10.8	Protein content (%)	12.6	Growth rate (g/day)	0.52	Survival (%)	84	Feed conversion ratio	1.55
Weight (g)	152	Moisture content (%)	75.2	Survival (%)	89	Survival (%)	79	Feed conversion ratio	1.48
Length (cm)	11.2	Protein content (%)	12.9	Growth rate (g/day)	0.58	Survival (%)	87	Feed conversion ratio	1.42
Weight (g)	158	Moisture content (%)	75.8	Survival (%)	93	Survival (%)	83	Feed conversion ratio	1.38
Length (cm)	10.9	Protein content (%)	12.7	Growth rate (g/day)	0.54	Survival (%)	85	Feed conversion ratio	1.52
Weight (g)	154	Moisture content (%)	75.4	Survival (%)	90	Survival (%)	80	Feed conversion ratio	1.44
Length (cm)	11.1	Protein content (%)	12.85	Growth rate (g/day)	0.56	Survival (%)	86	Feed conversion ratio	1.46
Weight (g)	156	Moisture content (%)	75.6	Survival (%)	91	Survival (%)	81	Feed conversion ratio	1.43
Length (cm)	10.7	Protein content (%)	12.65	Growth rate (g/day)	0.53	Survival (%)	84	Feed conversion ratio	1.53
Weight (g)	153	Moisture content (%)	75.3	Survival (%)	89	Survival (%)	79	Feed conversion ratio	1.49
Length (cm)	11.3	Protein content (%)	13.05	Growth rate (g/day)	0.62	Survival (%)	88	Feed conversion ratio	1.39
Weight (g)	162	Moisture content (%)	76.2	Survival (%)	94	Survival (%)	84	Feed conversion ratio	1.37
Length (cm)	10.6	Protein content (%)	12.55	Growth rate (g/day)	0.51	Survival (%)	83	Feed conversion ratio	1.58
Weight (g)	151	Moisture content (%)	75.1	Survival (%)	88	Survival (%)	78	Feed conversion ratio	1.51
Length (cm)	11.4	Protein content (%)	13.15	Growth rate (g/day)	0.65	Survival (%)	89	Feed conversion ratio	1.36
Weight (g)	165	Moisture content (%)	76.5	Survival (%)	95	Survival (%)	85	Feed conversion ratio	1.35
Length (cm)	10.4	Protein content (%)	12.45	Growth rate (g/day)	0.48	Survival (%)	82	Feed conversion ratio	1.62
Weight (g)	148	Moisture content (%)	74.8	Survival (%)	87	Survival (%)	77	Feed conversion ratio	1.56
Length (cm)	11.5	Protein content (%)	13.25	Growth rate (g/day)	0.68	Survival (%)	90	Feed conversion ratio	1.34
Weight (g)	168	Moisture content (%)	76.8	Survival (%)	96	Survival (%)	86	Feed conversion ratio	1.33
Length (cm)	10.3	Protein content (%)	12.35	Growth rate (g/day)	0.46	Survival (%)	81	Feed conversion ratio	1.65
Weight (g)	146	Moisture content (%)	74.6	Survival (%)	86	Survival (%)	76	Feed conversion ratio	1.54
Length (cm)	11.6	Protein content (%)	13.35	Growth rate (g/day)	0.72	Survival (%)	91	Feed conversion ratio	1.32
Weight (g)	170	Moisture content (%)	77.0	Survival (%)	97	Survival (%)	87	Feed conversion ratio	1.31
Length (cm)	10.2	Protein content (%)	12.25	Growth rate (g/day)	0.44	Survival (%)	80	Feed conversion ratio	1.68
Weight (g)	144	Moisture content (%)	74.4	Survival (%)	85	Survival (%)	75	Feed conversion ratio	1.57
Length (cm)	11.7	Protein content (%)	13.45	Growth rate (g/day)	0.76	Survival (%)	92	Feed conversion ratio	1.30
Weight (g)	172	Moisture content (%)	77.2	Survival (%)	98	Survival (%)	88	Feed conversion ratio	1.29
Length (cm)	10.1	Protein content (%)	12.15	Growth rate (g/day)	0.42	Survival (%)	79	Feed conversion ratio	1.70
Weight (g)	142	Moisture content (%)	74.2	Survival (%)	84	Survival (%)	74	Feed conversion ratio	1.59
Length (cm)	11.8	Protein content (%)	13.55	Growth rate (g/day)	0.80	Survival (%)	93	Feed conversion ratio	1.28
Weight (g)	174	Moisture content (%)	77.4	Survival (%)	99	Survival (%)	89	Feed conversion ratio	1.27
Length (cm)	10.0	Protein content (%)	12.05	Growth rate (g/day)	0.40	Survival (%)	78	Feed conversion ratio	1.72